

CLAIMS

1. An optical arrangement comprising:
 - a first beam splitter for transmitting light of a first polarization, to provide a first beam, and reflect light of a second polarization;
 - a first spectral filter in optical alignment with said first beam, said filter being
 - 5 adapted to return a second beam thereto; and
 - a first polarization rotator in optical alignment with said beam splitter and said spectral filter for effecting a rotation of the polarization of said second beam relative to said first beam whereby said second beam has said second polarization and is reflected by said beam splitter.
2. The invention of Claim 1 wherein said spectral filter is a Bragg grating.
3. The invention of Claim 1 wherein said spectral filter is an interference filter.
4. The invention of Claim 1 wherein said spectral filter is a multilayer coating.
5. The invention of Claim 1 wherein said spectral filter is designed to operate in reflection mode.
6. The invention of Claim 5 wherein said spectral filter includes a transmitting filter operationally coupled to a back reflecting mirror.
7. The invention of Claim 1 wherein said polarization rotator is a quarter-wave plate.
8. The invention of Claim 1 wherein said polarization rotator is a Faraday rotator.

9. The invention of Claim 8 further including a polarization adjuster in optical alignment with said rotator.

10. The invention of Claim 8 further including a second polarization rotator in optical alignment with said first beam splitter for effecting a rotation of the polarization of said light reflected from said beam splitter to provide a third beam.

11. The invention of Claim 10 further including a second spectral filter in alignment with said second polarization rotator.

12. The invention of Claim 11 further including a fold mirror disposed between the beam splitter and said second polarization rotator.

13. The invention of Claim 10 wherein said first spectral filter is adapted to receive said third beam.

14. The invention of Claim 10 wherein said first and second rotators are Faraday rotators.

15. The invention of Claim 14 further including a second beam splitter disposed between said second Faraday rotator and said spectral filter.

16. The invention of Claim 15 further including a first fold mirror disposed between the first beam splitter and said second polarization rotator.

17. The invention of Claim 16 further including a second fold mirror disposed between the first polarization rotator and the second beam splitter.

18. The invention of Claim 15 further including a first polarization adjuster disposed between said second Faraday rotator and said spectral filter.

19. The invention of Claim 18 further including a second polarization adjuster disposed between said first Faraday rotator and said fold mirror.

20. The invention of Claim 15 wherein said spectral filter is a Bragg grating.

21. An optical arrangement comprising:

a first beam splitter for transmitting light of a first polarization, to provide a first beam, and reflect light of a second polarization;

a first polarization rotator in optical alignment with said first beam splitter;

5 a second polarization rotator in optical alignment with said first beam splitter;

a second beam splitter in optical alignment with said first and said second polarization rotators; and

a spectral filter in optical alignment with said second beam splitter.

22. The invention of Claim 21 wherein said spectral filter is a Bragg grating.

23. The invention of Claim 21 wherein said polarization rotators are Faraday rotators.

24. The invention of Claim 23 further including polarization adjusters in optical alignment with said rotators.

25. The invention of Claim 21 further including a first fold mirror disposed between said first beam splitter and said second polarization rotator.

26. The invention of Claim 25 further including a second fold mirror disposed between said first rotator and said second beam splitter.

27. The invention of Claim 26 further including a first polarization adjuster disposed between said first Faraday rotator and said second beam splitter.

28. The invention of Claim 27 further including a second polarization adjuster disposed between said second Faraday rotator and said second beam splitter.

29. A filtering method including the steps of:

splitting an incident beam of electromagnetic energy into first and second beams with a beam splitter, said first beam having a first polarization;

5 applying said first beam to a spectral filter, said filter providing a return beam in response thereto; and

rotating the polarization of said return beam relative to said first beam and applying said polarization rotated return beam to the beam splitter whereby said beam splitter directs the return beam off-axis relative to the incident beam.